This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently Amended): A method for producing a transparent optical element having a surface which has reduced interfacial reflection, at least in certain regions, said method comprising:

providing a reference element having a respective surface made of a polymeric material, said respective surface of said reference element corresponding to the desired surface of the transparent optical element to be produced, and

exposing said respective surface of said reference element to the influence of high-energy ions in a vacuum to form an irregular nanostructure with alternately arranged elevations and depressions lying in between on said respective surface of said reference element;

subsequently coating said respective surface of said reference element with an electrically conducting thin film,

subsequently forming a mold by electrochemical forming, wherein said mold has ~~with~~ a negative contour which is superposed by said irregular ~~the~~ nanostructure ~~by electrochemical forming~~, and

using said mold in a molding process to form a nanostructure which reduces interfacial reflection directly on at least one surface of the ~~a~~ transparent optical element to be produced or on a coating on at least one surface of the transparent optical element to be produced.

2. (Previously Presented): The method as claimed in claim 1, wherein said reference element has an optically effective surface contour.

3. (Previously Presented): The method as claimed in claim 1, wherein said high-energy ions are generated by means of an argon/oxygen plasma.

4. (Previously Presented): The method as claimed in Claim 1, wherein said reference element is made from polymethylmethacrylate, diethylene glycol bis (allylcarbonate) (CR39) or methylmethacrylate-containing polymers.

5. (Previously Presented): The method as claimed in Claim 1, wherein, by means of said high-energy ions, the elevations of the nanostructure are formed with heights in the range between 30 nm and 210 nm.

6. (Previously Presented): The method as claimed in Claim 1, wherein the average thicknesses of the elevations of the nanostructure are in the range between 30 nm and 150 nm.

7. (Previously Presented): The method as claimed in Claim 1, wherein said electrically conducting layer is formed as a thin metal film.

8. (Previously Presented): The method as claimed in claim 7, wherein said electrically conducting layer is formed from gold.

9. (Previously Presented): The method as claimed in Claim 1, wherein the ions impinging on the respective surface have an energy in the range between 100 eV and 160 eV.

10. (Previously Presented): The method as claimed in Claim 1, wherein an ion bombardment of the respective surface is carried out over a time period of between 200 s and 600 s.

11. (Previously Presented): The method as claimed in Claim 1, wherein an ion bombardment is carried out at a pressure below 10^{-3} mbar.

12. (Previously Presented): The method as claimed in Claim 1, wherein the molding of the optical elements takes place by hot embossing or by a plastics injection-molding technique.

13. (Previously Presented): The method as claimed in Claim 1, wherein the molding of the optical elements takes place by extrusion embossing or UV replication.

14. (Previously Presented): The method as claimed in Claim 1, wherein the

surface of said optical element is coated with an organic-inorganic hybrid polymer and the nanostructure is formed with a mold on the surface of said hybrid-polymer layer.

15. (Previously Presented): A mold for producing optical elements produced by a method as claimed in Claim 1, said mold having an irregular nanostructure with alternately arranged elevations and depressions lying in between formed on a surface thereof, and the depressions in each case have different depths within an interval between 30 nm and 210 nm,

wherein the respective depths and/or thicknesses of depressions are distributed uniformly about a mean value within an interval.

16. (Previously Presented): The mold as claimed in claim 15, wherein the depressions have an average clear width in the range between 30 nm and 150 nm.

17. (Cancelled):

18. (Previously Presented): The mold as claimed in Claim 15, wherein said mold is formed for the production of Fresnel lenses.

19. (Previously Presented): The mold as claimed in Claim 15, wherein said mold is formed for the production of optical windows, optical lenses, lenticular lenses, beam splitters, optical waveguides or optical prisms.

20. (Previously Presented): The mold as claimed in Claim 15, wherein said mold is formed for the production of optically transparent films.

21. (Previously Presented): The mold as claimed in Claim 15, wherein said mold is formed for the production of coverings for displays or for optical indicating elements.

22. (Previously Presented): A process according to claim 1, wherein said elevations and depressions are formed in different dimensions over the respective surface whereby the corresponding nanostructure provides a refractive index gradient layer in the surface of the optical element.

23. (New): The method as claimed in claim 1, wherein in the molding process a nanostructure which reduces interfacial reflection is directly formed on at least one surface of the transparent optical element to be produced.

24. (New): The method as claimed in claim 1, wherein in the molding process a nanostructure which reduces interfacial reflection is formed on a coating on at least one surface of the transparent optical element to be produced.